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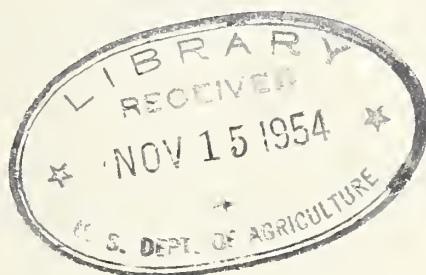
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## POLICIES OF THE DEPARTMENT OF AGRICULTURE WHICH CONCERN WATER

The Department of Agriculture advocates the adoption of a national water policy that will assure the maintenance of our present agricultural plant, that will promote the eventual maximum development and use of our water and land resources on an orderly basis to serve the broadest possible purposes, and that will at the same time guarantee the availability of these basic resources for the use of future generations. The Department has responsibilities for assisting the general public and particularly agricultural people in dealing with problems of water and land from the top of the watershed to the lowest point on the stream. In carrying out these responsibilities the Department has recognized and will continue to recognize the cooperative nature of the work with local and State agencies and with other agencies of the Federal Government. Consistent with its widespread interests in the field of water resources and based on its broad experience with programs affecting the development, utilization, conservation and disposal of water by individual and groups of farmers and ranchers, the Department recommends special consideration of the following:





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POLICIES OF THE DEPARTMENT OF AGRICULTURE WHICH CONCERN WATER

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2. River basin planning for the development, use and disposal of water should be in accord with national objectives and needs.
3. Local, State and Federal governments have a joint responsibility in the public aspects of the planning, development, and operation of water projects and programs.
4. The competition for water creates a need for additional legislation in some States.
5. Federal projects and programs for the development, use, control and disposal of water should be planned and carried out under existing authorities.
6. A policy advisory council is desirable on a continuing basis to formulate and keep current Federal Water Policies.

PROGRAM PLANNING

7. The development, use, conservation and disposal of water should be planned on a watershed basis.
8. Federal water projects should be scheduled to help balance the nation's productive capacity with the need for agricultural products.
9. Greater emphasis should be placed on programs and activities to conserve and improve cultivated lands, forests, and range lands as a means of protecting and enhancing the water resource.
10. Water projects should be kept in proper balance with land programs.
11. Watersheds should be stabilized to the extent practicable previous to or concurrently with mainstream project construction.
12. The economic feasibility and agricultural desirability of proposed Federal reservoirs should be carefully appraised, with consideration given to all beneficial and detrimental, tangible and intangible effects of inundating valley lands.
13. Flood plain zoning is desirable as an aid in reducing flood damages.
14. Reservoir construction on Federal lands should be coordinated with other uses of those lands.





15. The enhancement of fish, wildlife, and recreation should be provided for in planning and executing water resource development.
16. Review and coordination by the Executive Office of the President is needed for all Federal Projects and Programs having to do with water and related land resources.

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17. The economic evaluation of all proposed water development projects should be made according to uniform standards.
18. River basin programs should be formulated so they maximize net benefits.
19. Account should be taken in project evaluation of all net economic losses and adverse impacts incident to inundation of valley lands by reservoirs.

#### FINANCING AND COST SHARING

20. Consistent national cost sharing policies should be established.
21. Policies of the Federal Government should be consistent as they relate to furnishing services for the development, use, control and disposal of water.
22. Federal assistance to small irrigation enterprises should be that required to accomplish essential developments.
23. Reimbursement of Federal funds advanced for water development projects should be according to definite contracts executed prior to construction.
24. The Federal Government should assist in the planning and installation of needed and soundly conceived drainage enterprises.
25. Persons adversely affected by reservoir construction should be fully compensated for losses sustained.

#### INTERRELATED FEDERAL PROGRAMS

26. Federal departments interested in water should cooperate fully in all planning of projects and programs for the development, use, control and disposal of water.
27. There should be joint appraisal by the agricultural and engineering agencies of the government of the agricultural, economic, and engineering feasibility and desirability of proposed Federal irrigation projects.
28. Planning of all Federal water projects should be based on comparable basic data.
29. Plans for irrigation and drainage projects should include planning of all agricultural phases of the project.



30. The Federal Government should carry out its responsibilities for maintaining and improving watershed lands under Federal jurisdiction.
31. The use of water in national forests is related to the utilization and enjoyment of other forest resources.
32. The Department plans to continue its work relating to minerals in irrigation water and to the sedimentation of reservoirs and stream channels.
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34. Federal agencies should recognize and conform to the provisions of State laws controlling rights to the use of water.
35. Improvements are needed in State water laws and regulations to assure sound use and adequate protection of affected water resources and of Federal investments.





## BASIC CONSIDERATIONS

1. Water and land are interdependent. - Water and land are so closely related that their development, use and conservation must be planned and carried out in proper relationship to each other. Precipitation falls on the land. Water not used on the land or evaporated must flow over or through the land to reach municipalities, irrigation projects, industries, recreation sites and other places of beneficial use or to places of disposal. The kind and condition of plant cover on watershed lands and the use and management of those lands governs to a large extent whether water from them quickly reaches the streams to form destructive, sediment-laden floods or whether it runs off slowly in a form more useful to man. On the other hand, all agricultural uses and many other uses of land depend entirely on whether water is available. The productive value of land for agricultural purposes depends largely on the proper amount of suitable water at the right time, whether supplied by precipitation or irrigation or removed by drainage.
2. River basin planning for the development, use and disposal of water should be in accord with national objectives and needs. - The national interest in water as a public resource makes it essential that Federal water developments in each major river basin take their proper place in relation to national objectives and needs. The various elements, such as water supplies, land resources, traditional attitudes and customs of the people, climate, and demands and competition for water, should be carefully fitted together to develop the greatest sustained benefits not only for those in the basin but also for the Nation as a whole. The Department believes that Federal funds for water projects should be spent where and when necessary in relation to non-Federal efforts to help to solve national problems most effectively. Examples of national needs which are affected by water developments are:
  - (a) Adequate production to meet foreseeable requirements in light of prospects for agricultural production.
  - (b) The requirements for power in various sections of the country.
  - (c) Defense needs such as the dispersal of industry, with the requirements for additional water supplies in the new locations.
3. Local, State and Federal governments have a joint responsibility in the public aspects of the planning, development, and operation of water projects and programs. - Participation by the Federal Government in projects for the conservation of water and land resources should be limited to (1) those areas of operations where there is substantial public interest and benefit (2) those projects that are economically sound and socially desirable, (3) those projects where the accomplishment of the objectives which would serve the public interest would not be otherwise assured. Within these criteria, major emphasis in most instances should be on local participation at the community, county and State levels. The initiative for these projects should be at the appropriate local level and Federal assistance be extended only on the request of the local sponsoring group.





4. The competition for water creates a need for additional legislation in some States. - The increasing demands for water to support a growing population and expanding industry has created a serious competition for water in many of our major river basins. Ultimately, this competition probably will be found in nearly all river basins. Some western States in which water long has been scarce have established priorities for the competing uses of water either by law or by judicial decree. Almost universally domestic and municipal use rank first. Usually agricultural uses of water such as for livestock watering and irrigation are second. Occasionally industry is considered more important in this connection.

Since administration of rights to the use of water is a responsibility of the States, the Department recommends that each State study the relative importance of prospective needs for water and enact legislation designed to promote optimum development.

5. Federal projects and programs for the development, use, control and disposal of water should be planned and carried out under existing authorities. - The development, conservation, utilization and disposal of water and related land resources, though planned on a regional basis, should be carried out to the fullest extent possible under existing national laws or modifications thereof. Any proposed program or project requiring special authorization and appropriations should be based upon reports prepared in conformity with rules, regulations, and standards prescribed by the President for evaluating projects and programs. National programs now being cooperatively carried out and financed by Federal and non-Federal agencies (such as research, cooperative extension, technical assistance and financial aid programs and the Agricultural Credit program of the Department of Agriculture) should not be disrupted by reauthorization of regional segments thereof. The national programs may in some instances need to be accelerated in certain areas with funds provided for the purpose.
6. A policy advisory council is desirable on a continuing basis to formulate and keep current Federal Water Policies. - A permanent non-partisan water policy advisory council reporting to the President should be established. The council should be responsible for formulating and keeping current and responsive to the needs of the country a National water resources policy. Its membership might appropriately include representatives from the executive agencies principally concerned with water, from both Houses of the Congress and from non-Federal interests.

#### PROGRAM PLANNING

7. The development, use, conservation and disposal of water should be planned on a watershed basis. - The development, conservation, use and disposal of water should be planned and administered so all people in the small watershed, the large river basin and the Nation in general will derive the greatest benefits from it on a sustained basis. The welfare of all water users is dependent on what happens to water between the place where precipitation falls and the place where it is used or disposed of. Depending upon the size of the watershed, this span may involve short or long distances,





small or large acreages of watershed land, small or large numbers of land owners, few or many competing demands for water and land, and various other factors beyond the direct control of any one individual water user. The nature and extent of the problem of any individual is not necessarily affected by whether the watershed is small or large.

Water consumed anywhere in a basin means just that much less water available for other uses in the basin. In Western States with long-established systems of water rights, downstream water users may indirectly exercise legal authority over water far upstream. Where surplus water is a problem, virtually all land owners in the problem area must cooperate to properly dispose of it. Whatever affects water anywhere in a drainage basin may in some degree affect the welfare of nearly everyone in the basin.

To properly plan a specific water development or control project or a subwatershed for the use or disposal of water, consideration should be given to all factors in the large drainage basin within which it is located that might affect or be affected by the proposed project. Examples of these factors are the water-source areas in the basin and their contribution to the basin's total water supplies, the agricultural and other needs for water, both existing and in prospect, the need to control and dispose of surplus water, and the watershed conditions which affect the behavior and condition of water. These and other factors will vary in nature and importance from one river basin to another.

The Department feels that general basin-wide water and land resource development plans should be prepared for each of the major river basins of the country as rapidly as possible to outline its development opportunities and limitations and to indicate the broad developmental pattern most desirable in the public interest. Although it is desirable to delay selection and construction of large water development and control projects until basin-wide water and land plans can be prepared for the major river basins in which they will be located, it may not always be practical to do so. In such cases each project or program should as far as possible be planned with adequate consideration of all important water and land factors which affect or will be affected by it.

3. Federal water projects should be scheduled to help balance the nation's productive capacity with the need for agricultural products. - There should be ultimate full development and use of our land and water resources. Development should be scheduled so as to produce maximum benefits yet conserve resources for future use when needed. Our needs for agricultural products will expand substantially in the foreseeable future. The rate of construction and the priority placed on given water and land resource development projects that will result in increased agricultural production should be scheduled to bring about the orderly expansion of the Nation's agricultural plant as and when needed to meet the Nation's expanding needs. Such projects should be scheduled for completion at times when they will add to needed increases in agricultural production. To accomplish this, scheduling of irrigation and drainage projects that will



be required in the future must be done far enough in advance to obtain the basic data that will be needed, make the studies required to insure sound planning, construct the project works, and settle and fully develop the new lands that will be provided by the time they will be needed.

The following factors should be considered in scheduling Federal projects designed primarily to increase agricultural productions:

- a. The local and national need for agricultural commodities that the proposed project would produce.
  - b. The need for additional crop lands to enable existing farms with insufficient land base to become efficient operating units.
  - c. The effect on agriculture in other parts of the country.
  - d. The effect the proposed project would have on the over-all efficiency of the Nation's agricultural plant.
  - e. General economic conditions as they affect the supplies of labor and materials needed for installation of proposed facilities.
9. Greater emphasis should be placed on programs and activities to conserve and improve cultivated lands, forests, and range lands as a means of protecting and enhancing the water resource. - Protection of the Nation's water resources from pollution by sediment and mining wastes and of the vast investment in works to develop and utilize water resources, requires use of the land on which the water originates within its capabilities and in accordance with sound conservation and forestry methods. More specifically, adequate protection requires:
- a. Acceleration of soil and water conservation and flood prevention work on farms and ranges. The material eroded from such lands and the rate of runoff from them gives rise to serious sedimentation and flood problems.
  - b. Better management of forest lands. Over-cutting, destructive logging methods, over-grazing of forests, and carelessness with fire, still too prevalent as common practices on large acreages of forest lands, substantially reduce the effectiveness of forests as protectors of water supplies.
  - c. Improvement of vegetation on watershed lands including better management of grazing. Grazing use of ranges by livestock and game should conform, as to kind and degree of use, to standards which will result in satisfactory cover. Revegetation should be undertaken promptly where cover is badly deteriorated. High water using species, such as salt-cedar and cottonwood, growing along water courses in the Southwest should be held in check. At the same time, water used by vegetation that prevents erosion or harmful sediment movement should be recognized as an essential use.





- d. Public acquisition of watershed lands that cannot be properly utilized and conserved under private ownership. Federal assistance to local interests in adjusting the use of watershed lands within their capabilities and maintaining them in a stable and productive condition should be accomplished with a minimum of recourse to public ownership.

Where public acquisition offers the only practical solution to improving and maintaining in a stabilized condition critical runoff and sediment source areas of watersheds, municipalities and local and State governments will be encouraged to acquire such lands and to assume responsibility for their proper management.

Only under special conditions will Federal acquisition be considered and then only at the request of local or State agencies.

- e. Intensified protection of watershed lands from fire, insects, and disease. Those private forest lands not yet protected from fire need to be placed under organized protection. The standard of protection needs to be raised on large areas now receiving some but inadequate protection.
- f. Provision for minimizing the present large quantities of sediment and chemical wastes entering streams from mining and dredging operations. On Federal lands, mining laws should be revised to provide for a leasing system (or other effective alternative) for development of minerals, and for the withdrawal from development of the more critical watershed lands.

10. Water projects should be kept in proper balance with land programs. - The Department believes that assisting farmers, ranchers, forest land owners and others to properly use and manage both the watershed lands which produce the water supply and the lands served with irrigation water is fully as important as the large works required for control and use of rivers and should be provided for as adequately as the engineering phases of a water project.

In developing a water policy the National tendency is to think in terms of irrigation and drainage problems. However, there are vast expenses of non-irrigated cropland and rangeland not needing drainage which must be a vital factor in such a policy. It is from these lands that most of our commercial cereal and animal products are derived. It is necessary that these lands be used to their fullest productive capacity consistent with demand for products they produce.

Because of the nature of most of our farming operations, these same areas are one of our chief sources of silt and other stream contaminants. No water policy would be complete without full consideration of the problems encountered in such areas. These are the areas where the most intensive effort needs to be made in proper land use and management. Ordinarily gully erosion attracts little public attention and sheet erosion, which is equally damaging but much more insidious, often goes





unnoticed. Frequently apathy is encountered on the part of the farm owners and operators toward adjustments in land use and the application of soil and water conservation measures because of the slow march of land damage. Nevertheless there remains the extremely important job of getting good land use and management systems installed, proper vegetative cover established and maintained, effective water control systems installed and maintained, and suitable and profitable crop rotation systems inaugurated on individual farms and ranches if a well-rounded and effective National water use and control policy is to evolve and be applied.

11. Watersheds should be stabilized to the extent practicable previous to or concurrently with mainstream project construction. - Plans for improving and maintaining stabilized watershed conditions should be developed and carried out as vigorously as the construction of mainstream project works. The condition of watershed lands so affects most water projects that it should be a factor in project plans. Watershed conditions can affect the cost of operating and maintaining downstream facilities and the life of storage reservoirs. Proper ground cover, tillage, and grazing of watershed lands can improve water quality and the regularity of stream flow. Where needed, watersheds should be improved prior to or concurrently with construction of mainstream projects.
12. The economic feasibility and agricultural desirability of proposed Federal reservoirs should be carefully appraised, with consideration given to all beneficial and detrimental, tangible and intangible effects of inundating valley lands. - In many instances the inundation of bottom lands by the construction of reservoirs is proposed for the purpose of protecting other bottom lands downstream. In such cases a full presentation should be made of the productive capacities of the lands to be inundated and to be benefitted as a basis for judging the merits of the proposed developments.

The inundation of bottom lands by the construction of reservoirs frequently has far reaching effects. In areas where land suitable for cultivation is scarce, the loss occasioned by removing large blocks of valley lands by inundation may be much greater than the market value of the area purchased. The situation may be comparable, in its effects upon an entire community, to what happens to an individual farm when its best lands are flooded. In addition, the farmers displaced may be unable to find comparable farms in the region where they were reared and in which they wish to remain. Also, the community may be saddled with a need for additional roads or other improvements without the means to provide them. Further, the removal of the land from the tax rolls and the reduced values of lands remaining may cause serious dislocations in the local economy.

This does not mean, of course, that no reservoirs should be built. But it does mean that for any proposed project a thorough evaluation of all costs (including damages) and all benefits, both monetary and non-monetary, should be made and that unless a project is thoroughly justified it should not be built. Other devices such as zoning of downstream lands subject to flooding and flood insurance may in some instances offer satisfactory alternatives.





13. Flood plain zoning is desirable as an aid in reducing flood damages. - Consideration should be given in connection with all investigations of floodwater and sediment damages to the desirability of flood plain zoning as a means of reducing future flood damages. Flood plain zoning should be required of States or local governments where it is found to be feasible and desirable in conjunction with partial flood protection by facilities installed with Federal funds. Flood plain zoning should be designed to prevent types of development in the flood plain that might require installation of additional works for flood protection at a later date. Where flood plain zoning is found to be feasible and desirable, projects for flood protection should be formulated on the assumption that appropriate zoning restrictions and building regulations will be applied.

The Federal Government should share in the costs of making the adjustments in zoned flood plains to a degree consistent with its participation in alternative flood control methods.

14. Reservoir construction on Federal lands should be coordinated with other uses of those lands. - Federal construction agencies should take account of existing improvements on Federal lands that are to be inundated and of programs for adjacent Federal lands that would be adversely affected by reservoir construction. In general, if facilities are to be destroyed, or services are to be lost, provisions should be made in the project plans for their replacement by essential facilities or services of equal utility. If additional facilities or services become necessary because of reservoir developments, provisions should be made in the project plans for their installation, operation, and maintenance. Appropriation of the funds needed for the restoration of destroyed or damaged facilities or services or for additional facilities or services required by the project should be authorized by the legislation authorizing the project. Those funds should be sufficient to cover the cost of making the plans for restoration and/or installation of facilities and services as well as their actual replacement and/or development.

In each case plans for reservoirs should be carefully coordinated with plans for the full and efficient use of adjacent Federal lands.

15. The enhancement of fish, wildlife, and recreation should be provided for in planning and executing water resource development. - Enhancement of the fish and wildlife resource and recreational use should be a collateral objective from the beginning of planning for water resource development or watershed improvement. Any development of the water resource and any use or treatment of watershed lands directly or indirectly affects the habitat of fish and wildlife and the opportunity for recreation. Plans for the development of the water resource or for the treatment of watershed lands should provide to the extent practicable for the integrated development of the fish and wildlife resource and recreational use along with the development of the other resources.





16. Review and coordination by the Executive Office of the President is needed for all Federal Projects and Programs having to do with water and related land resources. - Adequate facilities should be established in the Executive Office of the President for the review and coordination of Federal projects and programs having to do with water and related land resources. They might consist of a review and coordination board established in the Executive Office and capable of conducting a general objective and impartial review and evaluation of water and land resource projects and programs in which Federal Government participation is proposed. Such a review and coordination board should not have planning or operating functions. Its responsibilities should remain flexible and subject to executive determination broadly within the following functions:

1. Review and coordination of basin-wide and project plans.

- (a) Be advised when agencies propose an investigation or survey. Clear such proposed surveys and investigations leading up to project plans or programs after assurance of opportunity for participation by all groups -- Government and non-Government, Federal and local -- which have a real interest in the major water and land problems of the area.
- (b) Review progress as required when a plan is being developed to determine if the desired integration is being realized. It should bring about a resolution of unresolved conflicts at this stage.
- (c) Final review and clearance of a proposed project or program proposal prior to transmission to the President and/or the Congress. No project should be transmitted for authorization until it has been cleared by the Board.
- (d) No project should be put under construction until it has received a final clearance from the Board if there has been a substantial time lapse change in related developments or in construction costs since its previous clearance.

2. Review and evaluate agency six-year programming of water and land resource development construction projects.

3. Review and evaluation of agency programs relating to water and land resources from the standpoint of consistency with over-all administrative and legislative policy dealing with this field of activity.

4. Development of broad standards for use by all agencies having to do with such matters as feasibility determinations (economic, agricultural, engineering) and cost allocation.

5. Review and coordinate research, the collection of information, and the publishing and interchange of technical data as they relate to basic data, survey techniques, construction design and related matters.

6. Assist the water resource advisory council by developing suggestions for basic changes in legislative and administrative policy having to do with water and land resources.





## PROGRAM APPRAISAL AND EVALUATION

17. The economic evaluation of all proposed water development projects should be made according to uniform standards. - Uniform standards should be used in estimating the benefits and costs of each major purpose to be provided by any proposed project or program. Economic benefits and costs should be adequately defined to reflect true resource values as nearly as possible. Such a definition should distinguish between economic values to be used in economic analyses and financial values to be used in investment and reimbursement analyses. The cost estimates should include all costs incurred for or induced by the establishment, maintenance and operation of the project irrespective of incidence, compensation or reimbursement. The benefits considered should include all increases in assets or values, whether in goods, services or intangibles and whether measured in monetary or non-monetary terms, which would result from development of the project. The benefits should be net of all costs required for their realization other than project costs.

Primary reliance in project formulation should be placed on primary or direct benefits and costs. Indirect or secondary benefits and costs usually would not need to be evaluated in monetary terms, except where they are used to provide a basis for reimbursement. Where these indirect effects are considered in project appraisal, the degree of evaluation and consideration of indirect costs should be comparable to that utilized for indirect benefits, and vice versa.

18. River basin programs should be formulated so they maximize net benefits. - River basin programs should be formulated in such a manner as to maximize net benefits consistent with broad program objectives. To accomplish this, segments of river basin programs must be separately evaluated in order to assure a surplus of benefits over costs. Separable segments of a project or program are those measures or groups of measures concerning which there is a practical choice of including them in or excluding them from the project or program. Thus programs should be formulated and evaluated in such manner that no separable segment will cost more than the additional benefits it produces.
19. Account should be taken in project evaluation of all net economic losses and adverse impacts incident to inundation of valley lands by reservoirs. - The inundation of valley lands by reservoirs often results in adverse economic impacts on both the agricultural and business activities in the vicinity of the reservoirs beyond the costs of reservoir site acquisition. Especially in areas where suitable land for cultivation is scarce, the market value of property inundated fails to adequately measure the full farm, business and community losses. As a measure of costs, as used in project evaluation, consideration should be given to the capitalized value of both present and potential production capacity of the properties affected. Among the other losses that should be appraised in terms comparable to those used for evaluating project benefits are:
1. Relocation costs, including net income losses.
  2. Depreciation of dependent and adversely affected properties and enterprises.
  3. Relocation of existing and construction of new access facilities to serve areas otherwise isolated by the reservoir.
  4. Increased costs and revenue losses to local units of government.





## FINANCING AND COST SHARING

20. Consistent national cost sharing policies should be established. - A general revision in prevailing policies and practices for cost sharing is needed in order to establish more consistent and systematic requirements for various types of resource programs; to obtain higher contributions towards costs by benefitted individual groups; and to induce groups immediately affected to assume more responsibility for project establishment and operation. To the fullest extent consistent with encouraging sound resource development and use and achieving other program objectives, cost sharing policy should emphasize the distribution of responsibility in accordance with benefits. The primary basis for a more consistent cost sharing policy should be the assignment of financial responsibility to immediate beneficiaries, communities and areas directly concerned in accordance with the extent of their benefits, after allowances for participation incentives and consideration of ability to pay.
21. Policies of the Federal Government should be consistent as they relate to furnishing services for the development, use, control and disposal of water. - Farmers and others needing and requesting technical and financial assistance from the Government for the installation and operation of irrigation, water supply drainage, and flood prevention, flood control and other facilities obtain such services from several Federal Governmental agencies which follow different policies with respect to authorization, repayment, collateral, technical services, and acreage limitations. For example, the costs of similar activities are reimbursable or otherwise shared under some programs and not under others. Repayment contracts vary substantially with respect to term; to cost elements included such as interest, administration and technical services; to acreage and related restrictions on windfall gains; and to numerous legislative and administrative provisions and requirements.

Consistent policies and practices should be established for various programs dealing with the development, use, control and disposal of water.

22. Federal assistance to small irrigation enterprises should be that required to accomplish essential developments. - Over a period of several years, there has been a recognition and consideration in both the Executive Branch and the Congress of the need for Federal programs of assistance to small irrigation enterprises as well as to large irrigation projects. In providing assistance to small irrigation enterprises, there should be taken into account and full use should be made of established National agricultural programs of research, education, technical assistance, financial aids, and credit, carried out in closest cooperation with States and local organizations.

In considering these needs, the Department of Agriculture has consistently taken the position that the primary responsibility for these projects should remain at the local level and that the role of the Federal Government should be limited to the minimum assistance in the public interest required to accomplish the essential improvements and developments.





The Department has also taken the position that Federal programs administered by different agencies should not duplicate or compete with each other. The Department of Agriculture believes that there should be a clear delineation with respect to the activities and field of effort between Federal Departments in providing assistance for the installation or rehabilitation of irrigation projects. In order to avoid conflicts of policy and to assure the maximum of non-Federal participation, the Department feels that:

1. Federal loans should be made available to individual farmers and to farmer controlled water users organizations (non-profit) who are unable to obtain credit from sources other than the Government in sufficient amount and on reasonable terms and conditions.
2. Interest should be charged on all loans at a rate not less than the cost to the Government of borrowing money.
23. Reimbursement of Federal funds advanced for water development projects should be according to definite contracts executed prior to construction.-  
Reimbursement of Federal expenditures for construction of water resources projects by benefiting local organizations should be in accordance with the following:
  - (a) Reimbursement should be uniform for similar benefits from different types of water resources projects.
  - (b) The share of payment assumed by local beneficiaries should show a reasonable relationship to benefits received, provided that the payment by local beneficiaries may be minor for:
    - (1) Projects yielding only very widespread downstream or public benefits where individual beneficiaries are not identifiable or the magnitude of benefits for any particular local area is not sufficient to warrant establishment of reimbursement contracts.
    - (2) Projects producing benefits over such long period of time or of such indefinite probability of occurrence as to make reimbursement contracts impracticable.
  - (c) That reimbursement contracts should take into account ability to pay.
  - (d) That reimbursement contracts covering initial Federal investment should not extend beyond the life of the project or 50 years, whichever is shorter.
  - (e) Any reimbursement required should be committed by local units of government or other responsible districts or organizations of the beneficiaries, prior to construction of the project, except for projects designed to relieve distress or emergency conditions where the nature of the problem is such that time would not permit consummation of satisfactory commitment contracts.



23. (Continued)

(f) That local responsibility for the operation and maintenance of projects should in all cases be committed prior to construction.

24. The Federal Government should assist in the planning and installation of needed and soundly conceived drainage enterprises. - An estimated 50 million or more acres of wet lands suitable for agricultural production needs drainage. Traditionally the drainage of wet lands in the United States has been handled by individuals, small groups, or drainage districts. Virtually all drainage efforts have been financed from non-Federal sources. Much of the work has not been effective. The 30 drainage district states reporting in the 1950 census showed almost half of the lands in these districts to be inadequately drained. Comparable data are not available for the 10 county drainage states. No census data were secured for the remaining states. Many of the installations have failed because of inadequate or improper design or installation, lack of maintenance, or of inadequate financing.

Based on past experience, Federal participation is needed in the planning and installation of drainage enterprises. Many desirable drainage installations cannot be made without public assistance in providing major outlets. Where needed, these major outlets, when installed, will furnish required facilities for the installation of supplemental drainage systems. Where adequate outlet capacity exists, local drainage systems can, of course, be planned as there is need for production from the land.

Federal assistance in planning and installing measures for drainage in small watersheds should be a part of such assistance in the planning and installation of measures for the agricultural aspects of the development, use, conservation and disposal of water in the watershed as a whole. It should be made available only in response to requests from responsible local sponsoring organizations and, insofar as installation participation is concerned, should consist of an equitable share of costs in accordance with the public benefits involved. This assistance should be directed toward maintenance of existing agricultural productivity and establishment of economic agricultural units. It should be commensurate with expected needs for agricultural production.

There are vast areas of wet land in addition to the acreage mentioned above that because of soil characteristics or for other reasons are unsuited to agricultural use and should not be drained but should be utilized for production of fur bearing animals, as nesting sites for aquatic birds, for improved habitat for fish and wildlife and for recreational use.

25. Persons adversely affected by reservoir construction should be fully compensated for losses sustained. - Farm owners and operators whose lands are acquired as reservoir sites often experience difficulty in buying or renting comparable property in the areas where they prefer to continue living. Payments received for their lands frequently are not sufficient to enable them to get established on comparable farms. In addition they have had to bear the cost of moving and bear losses incident to disruption of their farm businesses as going concerns. The reasonable cost of relocation and disturbance can be established and should be paid by the Government





25. (Continued)

agency responsible for reservoir site acquisition. Property acquisition methods should be used which assure that owners' and operators' interests are fully taken into account.



INTERRELATED FEDERAL PROGRAMS

26. Federal departments interested in water should cooperate fully in all planning of projects and programs for the development, use, control and disposal of water. - The inter-relationship in each major river basin of all projects and programs involving water is such that no single department of government can be sure that it has all of the information and experience needed to plan and carry out all phases of a project or to judge correctly its impact on other interests in the basin. It is essential that each department with responsibility for a water project consult other agencies in regard to (1) information needed by the planning agency and (2) the relation of the proposed project to other Federal projects and programs.
27. There should be joint appraisal by the agricultural and engineering agencies of the government of the agricultural, economic, and engineering feasibility and desirability of proposed Federal irrigation projects. - The fundamental need that gives rise to irrigation projects is need for a means to produce agricultural commodities. The resources involved, water and land, are those required in proper quality and quantity to produce crops. Irrigation planning is, therefore, a part of agricultural planning, and an irrigation project is primarily an agricultural undertaking.

Careful studies of the need for additional agricultural production of the kinds that could be produced by a project, of markets, soils, farm management problems, repayment prospects by settlers and other agricultural matters should be made before a project is authorized or constructed.

At the same time the prospective needs for agricultural services upon completion of the project should be determined to allow advance planning for making them available. Educational and technical assistance and direct aids generally are needed and sources of adequate credit usually need to be provided. Modifications in national price support and commodity adjustment programs may be called for.

All of these agricultural matters are aside from the engineering aspects of proposed developments. To accomplish a truly balanced and adequate investigation of proposed projects both aspects should be considered on a correlated basis before a project is recommended for authorization.

The knowledge, experience, and facilities of the Department of Agriculture should be utilized to study and report on the economic and agricultural feasibility and impacts of proposed water resources projects prior to their authorization. Such studies should determine whether or not the irrigation, drainage, and flood damage reduction aspects of proposed projects are in harmony with good land use and in accordance with land capabilities for differing intensities and kinds of use. They should be concerned with the potential prospects for water users to repay that part of project costs appropriately allocable to irrigation.





28. Planning of all Federal water projects should be based on comparable basic data. - Plans for the development of water and land resources depend largely on the accuracy of the basic data used in their preparation. Additional basic data will be needed in each region, basin, or area proposed for further development. Provision should be made in each case for:
- (1) Further assignment of responsibility for the collection of data among agencies having special qualifications for obtaining it.
  - (2) Establishment of uniform standards of accuracy for the collection and presentation of data.
  - (3) Provision for scheduling the gathering of data so that they will be available when needed.
29. Plans for irrigation and drainage projects should include planning of all agricultural phases of the project. - Proposals for Federal participation in the construction of projects involving irrigation or drainage should contain data and estimates relating to the agricultural aspects of the development and occupation of the farms to be served and an evaluation of the economic and agricultural feasibility of the project and the ability of users to pay costs. This is a responsibility of the Department of Agriculture, and funds for Federal participation in the settlement, development, and operation of the farms should be provided.
30. The Federal Government should carry out its responsibilities for maintaining and improving watershed lands under Federal jurisdiction. - In many major drainage basins a large part of the watershed lands are under jurisdiction of various departments of the Federal Government. The Federal Government should so maintain and improve these watershed lands that they do not add to the Federal or non-Federal cost of constructing, operating and maintaining projects for irrigation, water supply, power, drainage, flood prevention and control, and other purposes.
31. The use of water in national forests is related to the utilization and enjoyment of other forest resources. - The Department of Agriculture will continue to manage the national forests according to multiple use principles by which all forest resources are developed and used in such a manner as to obtain the greatest net public benefit on a sustained basis. In order to get the best combination of uses and intensity of use compatible with this objective, a balance must be maintained between all uses. The plans for water use on the national forests will be made a part of the over-all plans for multi-purpose use of the national forests for watershed protection, timber production, livestock grazing, recreation, wildlife, etc.
32. The Department plans to continue its work relating to minerals in irrigation water and to the sedimentation of reservoirs and stream channels. - Water supplies for use by man, animals, and for irrigation need to be protected from pollution by sewage, industrial wastes, and silt. These common sources of pollution are so widespread that few streams or reservoirs completely escape some form of contamination. Yet practical methods of preventing pollution are well known and many States are making good prevention progress at the present time.

This Department has long been concerned with certain phases of the problem, particularly those dealing with salinity of irrigation water



and siltation of reservoirs and stream channels. The Department will continue these activities. It will also be its policy to cooperate so far as possible with State and local agencies in the work it is doing in the protection of the quantity and quality of water supplies.

33. More basic information is needed about rural pollution factors which influence quality of water. - The quality of water delivered for use is frequently as important as the quantity thereof. This factor is of particular importance in the irrigated sections of the country. The use and re-use of irrigated water on highly mineralized soils increases the dissolved minerals oftentimes to the point where its use is harmful in the production of crops. The activities of the salinity laboratories should be augmented to the point where workable techniques for alleviating this situation are developed.

Highly mineralized waters are frequently found to be unusable in many industries. Their purification adds greatly to the processing costs. The quality of available water frequently dictates the location of certain industries. Decentralization of industry could be materially influenced by this item. Facts should be developed on the effects which soil amendments and pesticides that may be leached from the soil have on this problem.

#### STATE LAWS

34. Federal agencies should recognize and conform to the provisions of State laws controlling rights to the use of water. - Rights to the use of water involved in Federally developed irrigation projects should be acquired under procedures of the States concerned.

Federal agencies providing credit or other assistance to individual or groups of farmers and ranchers for development of water for beneficial use should assure themselves or have an understanding that those receiving the assistance have the right under applicable State law to so use the water prior to rendering assistance.

35. Improvements are needed in State water laws and regulations to assure sound use and adequate protection of affected water resources and of Federal investments. - Control and regulation of water rights under the laws and regulations of the several States has not always proved adequate to protect and assure the national interest in sound use of the water resource. For example, over-pumping has resulted in serious ground water depletion in some areas threatening the existence of communities, farms, and industries. This in turn has placed heavy pressure on the Federal Government to engage in "rescue" operations. Also there has been water wastage through application on inferior land and production of high water consuming crops in areas where the water supply is limited.

While corrective action is primarily a responsibility of the States, Federal policy should require as a minimum condition precedent to Federal participation in water resource developments, essential improvements in State water laws and regulations needed to assure sound use and protection of the affected water resources and of the national interest.









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